

Chemical and Environmental Measurement Information

**Recra LabNet Philadelphia
Analytical Report
REVISION**

Client : TNU-HANFORD B99-085
RFW# : 9909L126
SDG/SAF #: H0535/B99-085

W.O. #: 10985-001-001-9999-00
Date Received: 09-17-99

SEMIVOLATILE

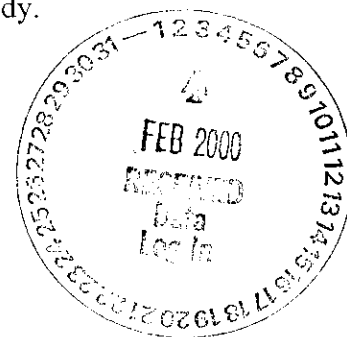
This narrative was corrected to add the TIC search for Tributylphosphate.

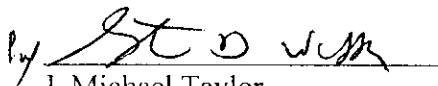
One (1) water sample was collected on 09-15-99.

The sample and its associated QC samples were extracted on 09-21-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B TCL Semivolatile target compounds on 10-04-99.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The required holding times for extraction and analysis were met.
3. Non-target compounds were detected in these samples.
4. These samples were spectrally searched for Butylated Hydroxytoluene and Tributylphosphate; however, they were not identified in the samples.
5. All surrogate recoveries were within USEPA QC limits.
6. Two (2) of eleven (11) matrix spike recoveries were outside USEPA QC limits. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. Two (2) of eleven (11) blank spike recoveries were outside USEPA QC limits. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

RECEIVED
MAR 20 2000**EDMC**


J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

pef\gorup\data\bna\tnu09126.doc

01-22-00
Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.



GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.



Initiator: J. Durbin RFW Batch: 9909L126 Parameter: BNA
 Date: 10-5-99 Samples: MSD, BS Matrix: Water
 Client: INU Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 99LE11SD
899-085 cont

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)....signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

MSD + BS yielded very low recoveries for
4-nitrophenol + pentachlorophend

2. Known or Probable Causes(s)

possible problem with prep

3. Discussion and Proposed Action

Other Description: Narrate

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

[Signature] 10/7/99

4. Project Manager Instructions....signature/date:

☐ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
 Date/Person _____
☐ Add
☐ Cancel

5. Final Action....signature/date:

[Signature] 10/25/99

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☒ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR

☒ Initiator
☒ Lab Manager: M. Taylor
☒ Project Mgr: Stone/Carey/Schrenkel/Johnson
☒ Section Mgr: Wesson/Daniels
☒ QA (file): Racioppi
☐ Data Management: Feldman
☐ Sample Prep: Schnell/Doughty/Kauffman

Route Distribution of Completed SDR

☐ Metals: Doughty
☐ Inorganic: Perrone
☐ GC/LC: Schnell
☐ MS: LeMin/Taylor
☐ Log-in: Toder
☐ Admin: Soos
☐ Other: _____

Semivolatiles by GC/MS, HSL List

2.

Page: 1a

Sample	RFW#:	001	001 MS	001 MSD	99LE1150-MB1	99LE1150-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L

	Nitrobenzene-d ₅	98 %	91 %	91 %	83 %	85 %
Surrogate	2-Fluorobiphenyl	79 %	77 %	75 %	77 %	67 %
Recovery	Terphenyl-d ₁₄	89 %	93 %	82 %	82 %	87 %
	Phenol-d ₅	82 %	83 %	79 %	81 %	69 %
	2-Fluorophenol	70 %	79 %	75 %	82 %	49 %
	2,4,6-Tribromophenol	73 %	93 %	68 %	69 %	56 %
<hr/>						
<hr/>						
Phenol		10 U	76 %	76 %	10 U	65 %
bis(2-Chloroethyl) ether		10 U	20 U	20 U	10 U	10 U
2-Chlorophenol		10 U	73 %	74 %	10 U	59 %
1,3-Dichlorobenzene		10 U	20 U	20 U	10 U	10 U
1,4-Dichlorobenzene		10 U	72 %	72 %	10 U	48 %
1,2-Dichlorobenzene		10 U	20 U	20 U	10 U	10 U
2-Methylphenol		10 U	20 U	20 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)		10 U	20 U	20 U	10 U	10 U
4-Methylphenol		10 U	20 U	20 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	98 %	87 %	10 U	71 %
Hexachloroethane		10 U	20 U	20 U	10 U	10 U
Nitrobenzene		10 U	20 U	20 U	10 U	10 U
Isophorone		10 U	20 U	20 U	10 U	10 U
2-Nitrophenol		10 U	20 U	20 U	10 U	10 U
2,4-Dimethylphenol		10 U	20 U	20 U	10 U	10 U
bis(2-Chloroethoxy)methane		10 U	20 U	20 U	10 U	10 U
2,4-Dichlorophenol		10 U	20 U	20 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	77 %	80 %	10 U	54 %
Naphthalene		10 U	20 U	20 U	10 U	10 U
4-Chloroaniline		10 U	20 U	20 U	10 U	10 U
Hexachlorobutadiene		10 U	20 U	20 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	81 %	73 %	10 U	72 %
2-Methylnaphthalene		10 U	20 U	20 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	20 U	20 U	10 U	10 U
2,4,6-Trichlorophenol		10 U	20 U	20 U	10 U	10 U
2,4,5-Trichlorophenol		25 U	50 U	50 U	25 U	25 U

*= Outside of EPA CLP QC limits.

Cust ID:

BOWCP8

BOWCP8

BOWCP8

SBLKDI

SBLKDI BS

RFW#:

001

001 MS

001 MSD

99LE1150-MB1

99LE1150-MB1

2-Chloronaphthalene	10	U	20	U	20	U	10	U	10	U
2-Nitroaniline	25	U	50	U	50	U	25	U	25	U
Dimethylphthalate	10	U	20	U	20	U	10	U	10	U
Acenaphthylene	10	U	20	U	20	U	10	U	10	U
2,6-Dinitrotoluene	10	U	20	U	20	U	10	U	10	U
3-Nitroaniline	25	U	50	U	50	U	25	U	25	U
Acenaphthene	10	U	86	%	85	%	10	U	73	%
2,4-Dinitrophenol	25	U	50	U	50	U	25	U	25	U
4-Nitrophenol	25	U	32	%	0	* %	25	U	8	* %
Dibenzofuran	10	U	20	U	20	U	10	U	10	U
2,4-Dinitrotoluene	10	U	99	* %	84	%	10	U	69	%
Diethylphthalate	10	U	20	U	20	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	20	U	20	U	10	U	10	U
Fluorene	10	U	20	U	20	U	10	U	10	U
4-Nitroaniline	25	U	50	U	50	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	50	U	50	U	25	U	25	U
N-Nitrosodiphenylamine (1)	10	U	20	U	20	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	20	U	20	U	10	U	10	U
Hexachlorobenzene	10	U	20	U	20	U	10	U	10	U
Pentachlorophenol	25	U	73	%	17	%	25	U	7	* %
Phenanthrene	10	U	20	U	20	U	10	U	10	U
Anthracene	10	U	20	U	20	U	10	U	10	U
Carbazole	10	U	20	U	20	U	10	U	10	U
Di-n-butylphthalate	1	J	2	J	2	J	10	U	10	U
Fluoranthene	10	U	20	U	20	U	10	U	10	U
Pyrene	10	U	94	%	83	%	10	U	88	%
Butylbenzylphthalate	10	U	20	U	20	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	20	U	20	U	10	U	10	U
Benzo(a)anthracene	10	U	20	U	20	U	10	U	10	U
Chrysene	10	U	20	U	20	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	5	J	20	U	10	U	3	J
Di-n-octyl phthalate	10	U	20	U	20	U	10	U	10	U
Benzo(b)fluoranthene	10	U	20	U	20	U	10	U	10	U
Benzo(k)fluoranthene	10	U	20	U	20	U	10	U	10	U
Benzo(a)pyrene	10	U	20	U	20	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	20	U	20	U	10	U	10	U
Dibenz(a,h)anthracene	10	U	20	U	20	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	20	U	20	U	10	U	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

006

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOWCP8

Lab Name: Recra.LabNet

Work Order: 10985001001

Client: TNU-HANFORD B99-085

Matrix: (soil/water) WATER

Lab Sample ID: 9909L126-001

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: A100410

Level: (low/med) LOW

Date Received: 09/17/99

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 09/21/99

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/04/99

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 3

(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.77	2	J
2.	UNKNOWN	7.94	3	J
3.	UNKNOWN	23.13	4	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKDI

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-085

Matrix: (soil/water) WATER

Lab Sample ID: 99LE1150-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: A100408

Level: (low/med) LOW

Date Received: 09/21/99

% Moisture: decanted: (Y/N)

Date Extracted: 09/21/99

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/04/99

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 0

(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-085

DATE RECEIVED: 09/17/99

RFW LOT # :9909L126

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOWCP8	001	W	99LE1150	09/15/99	09/21/99	10/04/99
BOWCP8	001 MS	W	99LE1150	09/15/99	09/21/99	10/04/99
BOWCP8	001 MSD	W	99LE1150	09/15/99	09/21/99	10/04/99

LAB QC:

SBLKDI	MB1	W	99LE1150	N/A	09/21/99	10/04/99
SBLKDI	MB1 BS	W	99LE1150	N/A	09/21/99	10/04/99

All

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) perrone
wet chem

Special Instructions:

Page # B99-085

9/23/99 - INH3N added to cool per client cox.

**COMPOSITE
WASTE**

DATE/REVISIONS:

OGCSC = 1-propanol, Ethanol

met ①₂ = As, Ba, Cd, Cr, Pb, Se, Ag, Cu.

3. Ni, V, Zn, Be

$\Delta n_{\lambda(1)} = 1CCL, 1CFL, 1CN02, 1CN03, 1CP04,$

5. IC504, 1PH, INH3N

6. Run matrix GC

RECRA LabNet Use Only

Samples were:

1) Shipped ☒ or
Hand Delivered ☐

Airbill #

2) Ambient or Chilled

3) Received in Good Condition ☒ Y or N

4) Labels Indicate Properly Preserved

(Y) or N

5) Received Within _____

Holding Times α

COC Tape was:

1) Present on Outer
Package (Y) or N

2) Unbroken on Outer

3) Present on Sample

3) Present ☒ Sample or N

4) Unbroken on
Sample Y or N

COC Record Present

Upon Sample Rec't
Y or N

☐ Cooler

Discrepancies Between

Samples Labels and

COC Record? ☒ Y or ☐ N

NOTES: Sul fix bot
not for

100 500 ml

5) Received Within _____

Holding Times α

Y OT (N)

Chain indicators

**FLUOR DANIEL
FERNALD**

P.O. BOX 538704
CINCINNATI, OH 45253-8704

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS RECORD

REFERENCE DOCUMENT NO.:

SPL-99-0918

ORIGINAL REF NO.:

NA

CORRESPONDING REFERENCE DOCUMENT NO.:

PAGE 1 OF 1

RELEASE NO.: 1000019758	PROJECT NO.: 20200-PSP-0005	FOR SAMPLE RELATED PROBLEMS ACS CONTACT / PHONE: Audrey Hannum 4943	CONTRACT PURCHASE ORDER / TASK ORDER NO.: 965800217-034
PROJECT NAME: Area 3A/4A Subsurface PreDesign	REQUIRED REPORT DATE / LAB TAT: 21 DAYS	RECEIVING LAB NAME: RECRA	SAMPLE SHIPMENT DATE: 9-15-99
PROJECT CONTACT / PHONE: Christine Musserly 4619	RECEIVING LAB ADDRESS: LIONVILLE, PA, 19341	SAMPLE SHIPPER (Print): Ron Houston	OFF-SITE LAB CONTACT: ROB CAREY
CHARGE NO: 5231	LOT MARKING NO.: NA		
SAMPLING TEAM (Print) & GROUP NAME / PHONE: JOYCE GRACE/EM/SMMP/14848/K.H. Ryce/EM 3267/John VANDINE/Bob Minges			
SAMPLING TEAM (Signature & Badge No.): Joyce Grace 10781/Rob Carey 9338/DeVane 5536/DLH 7651			

ITEM NO.	SAMPLE NUMBER		SAMPLE MATRIX	COLLECTION DATE	CONTAINER TYPE	PRESERVATION	ANALYSES REQUESTED <small>If more space is required, use the SPECIAL INSTRUCTIONS block</small>	OFF-SITE
	FACTS ID	CUSTOMER ID / SAMPLE POINT						
1	20036161712483-6B-L	S soil	✓	09/13/006	G 60	1 Cool 40C	*	Y
2	2003616133A4A-SUB-TB5	W water	✓	09/13/0830	G 40	3 H ₂ SO ₄ pH < 2 Cool 40C	*	Y
3	No samples below this line Jag 09/13/99							
4								
5								
6								
7								
8								
9								
10								

SPECIAL INSTRUCTIONS: * TAL I = Total volatiles ** All Trip Blanks have bubbles

RELINQUISHED			RECEIVED		
ITEM / REASON	RELINQUISHED BY (Signature) / AFFILIATION	BADGE NO. DATE TIME	RECEIVED BY (Signature) / AFFILIATION	BADGE NO. DATE TIME	
1, 2, Release to SPL	Ryly EM/SMMP	176951 9/14/99 1307	Karen Heffernan/SPL	17706 9/14/99 1307	
1, 2 TO SHIP	Rob Carey SPL	276719 9-15-99 1300	Janson		

WHITE

ON-SITE - RELEASE FILE / OFF-SITE ANALYTICAL LAB - RETURN TO FEMP

YELLOW

ON-SITE - DISTRIBUTE AS NEEDED / OFF-SITE ANALYTICAL LAB - RETURN TO FEMP

BLUE

SAMPLING TECH / PROJECT FILE